Systems Planning and Programming

Services and Products

We're Shaping Utah's Transportation Future Today

UDOT Connecting Communities

Utah Department of Transportation

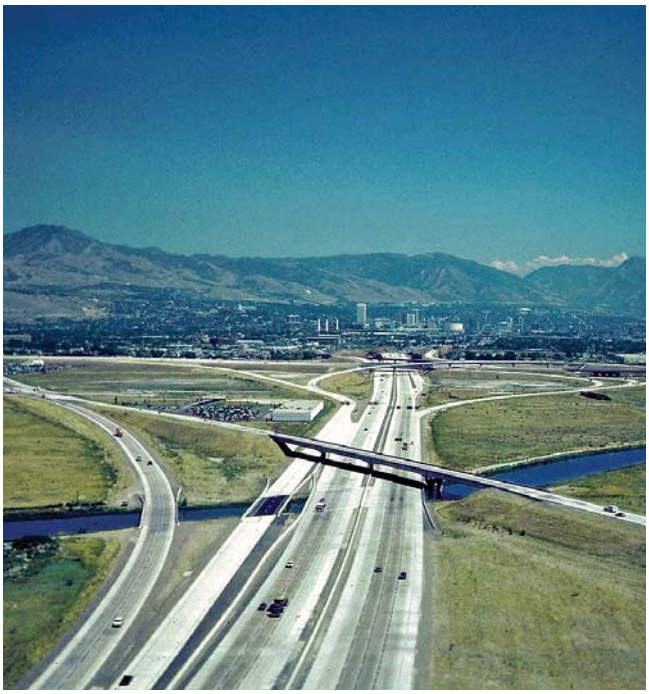

Photo by Daniel B. Kuhn

UDOT Systems Planning and Programming Business Areas

UDOT has the responsibility to plan, construct and maintain the state highway system. Vital to its success, the Systems Planning and Programming group supports UDOT's overall efforts through four major business areas, which are to:

1. Monitor Transportation System Conditions
2. Identify Transportation Needs
3. Establish Transportation Plans
4. Determine Program and Project Schedule

Explained in greater detail in the following pages, our four business areas support and guide each of UDOT's four strategic goals.

UDOT STRATEGIC GOALS:

Take Care of What We Have

By taking care of what we have, UDOT is more efficient in allocating resources to the roadway system over time. Keeping the roadway system in good condition maximizes the life of the roadway asset; the costs to maintain an asset are lower than neglecting them until needing major reconstruction.

Years ago UDOT adopted a "Good Roads Cost Less" philosophy. The core of this philosophy is that well-timed maintenance and preservation activities over the life of each component of the system will cost far less than having to replace it prematurely.

Make it Work Better

Making it work better means that UDOT looks at ways to make system improvements that can improve capacity, increase longevity or improve safety through a variety of relatively low-cost techniques. UDOT focuses on three strategies: Travel Demand Management (TDM), Intelligent Transportation Systems (ITS) and access management before adding new lanes.

Improve Safety

This goal is established to reduce the number of accidents on Utah's roadways. Through intensive analysis of accident data across the state, UDOT identifies project priorities that address this goal. Safety improvements include adding guardrails, advance warning signs, intersection modifications, widening shoulders along roadways or straightening a curve to improve sight distance.

Increase Capacity

UDOT's final approach to funding transportation solutions is to increase capacity. UDOT is well aware of congested areas and is committed to find solutions that enable the free flow of people and products throughout the state.

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1. Monitor Transportation System Conditions

This business area includes the work activities necessary to maintain an inventory of Utah's transportation system and monitor the physical conditions and the use of that system. This work involves measurement, analysis and reporting of some of the key attributes of Utah's transportation system. The principal product from this business area is information that is used agency-wide by federal, state and local government and by external customers to manage and develop the transportation system.

The principal work and products include:

- Maintaining an inventory of the transportation system
- Providing traffic data
- Providing data for maps from the cartography unit
- Creating an annual statistical summary
- Providing information on current pavement conditions
- Utilizing information on condition of bridges and other structures
- Utilizing crash data and safety status information

The organizational units with responsibilities in this area include:

Photolog Road Data Collection: Inventories all the off-system roads. Maintains and updates the state photologging system.

Data Collection: Collects raw traffic data including vehicle weights, classification and volume counts, and maintains the state's permanent counter locations.

Pavement Condition: Surveys the state road system and collects data on ride, skid, structural and surface distress to monitor system-wide pavement conditions.

Roadway Management: Manages reference and feature information as well as the Roads/HPMS database.

Data Analysis: Transforms raw data into statistics required for analysis and submittal to the Federal Highway Administration (FHWA). Prepares traffic data for publication.

Systems and Data Analysis: Publishes the Annual Statistical Summary.

Others involved include:

(not in Systems Planning and Programming)

Traffic and Safety Division: Analyzes crash data to determine the safety hazards on the road system.

Structures Division: Performs inspections of bridges and other structures to determine present condition and develop strategies for maintenance and rehabilitation.

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2. Identify Transportation Needs

This business area includes the activities undertaken to evaluate system needs, which are addressed in planning and programming.

To determine preservation and development priorities, UDOT compares current and projected conditions to desired conditions or system performance goals. The difference in conditions identifies needs. Goals are based on public input, technical analysis and financial feasibility. Once overall needs have been identified, we consider the tradeoffs between preservation activities, improvements designed to reduce congestion, mitigation of safety hazards and other objectives.

The principal work and products include:
- A preservation program for pavements and structures
- A mobility improvement program
- A safety hazard mitigation program
- Community outreach

The organizational units with responsibilities in this area include:

Asset Management: Provides a systematic, fact-based, reproducible approach to analyzing tradeoffs between investment and improvement alternatives and is used to compare and balance the technical and financial factors that affect decisions.

Pavement Management: Performs pavement management analysis to determine the most cost-effective approach to preserving the pavement.

Modeling: Forecasts the impacts of policies, programs, projects and growth rates on transportation facilities. These impacts are quantified by representing the projected demand in terms of forecasted traffic volumes and transit ridership.

Long-Range Planning: Identifies current and future needs on the state transportation system. Solicits public involvement through local and statewide surveys, community and special group outreach meetings as part of the transportation planning process.

Data Analysis: Performs analysis of existing traffic characteristics and makes forecasts of future truck traffic.

Others involved include:
(not in Systems Planning and Programming)

MPOs: Provide transportation planning in the urban areas and forecasts future traffic.

Structures Division: Forecasts bridge deterioration and determines bridge needs.

Traffic and Safety Division: Forecasts anticipated crash rates and determines safety needs.

Regions: Identifies project needs through a variety of mechanisms. Regions also have liaisons with the citizens of Utah through public involvement coordinators.

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3. Establish Transportation Plans

This business area prepares plans describing how to address the identified needs. In addition to the Long-Range Transportation Plan, Freight, Bicycle and Pedestrian Plans, Community Transportation Plans and various corridor plans are developed. These plans are intended to set the goals for development and identify specific implementation actions addressing transportation needs identified in the previous stage. These plans guide the Regions in selecting projects for inclusion in the STIP.

UDOT coordinates with, provides input to, and supports the development of plans by outside agencies, including MPO transportation plans and review of air quality conformity analysis.

The principal work and products include:
- Statewide Long-Range Plan
- Planning Studies
- Bicycling and Pedestrian Planning
- Air Quality Planning
- Freight Planning
- Corridor Plans
- Community Transportation Plans

The organizational units with responsibilities in this area include:

Community Transportation Planning: Assists local communities in developing Community Transportation Plans. Completes or oversees completion of corridor studies on segments of the state transportation system where additional information is needed to make decisions and prioritize future projects.

Photo by Daniel B. Kuhn

Modeling: Coordinates Travel Demand Forecasting with MPOs in urban areas using computerized simulation models to test alternative transportation plans and assess air quality and safety issues on the transportation system. Works with UDOT Regions, consultants and the MPOs to use modeling forecasts to develop more refined operational models.

Long-Range Planning: Develops the Statewide Long-Range Transportation Plan using the Community Transportation and Corridor Plans as background information. Modal plans such as Rail, Freight and Bicycle are included in the final plan. This unit also provides assistance to the MPOs in the development of their long-range plans and Transportation Improvement Programs (TIPs).

Others involved include:
(not in Systems Planning and Programming)

Regions: Review and recommend adjustments to Transportation Plans.

MPOs: Develop long-range plans and TIPs for MPO areas in cooperation with UDOT.

The Transportation Commission and UDOT Senior Management also play a role in this business area by providing guidance and subsequently approving the plans that are brought forward.

4. Determine Program and Project Schedule

This business area applies financial constraints to prioritized projects that match Utah's plans. Once the plans are established, the programming process seeks to find the optimal mix of funding for prioritized project needs. Programming is the process through which funds are committed to projects resulting in a work plan called the STIP. The selection of projects is constrained to those on the Long-Range Plan and by the availability of funds that can be used for each type of project. Balancing non-traditional projects, timing of projects and additional factors beyond a project's ranking with the limitations of federal funding categories also enter into the decision-making process.

The principal work and products include:

- Statewide Transportation Improvement Program (STIP)
- Local Government Assistance
- Transportation Enhancements Program
- Public Transportation Programs (Aged, Disabled and Rural Transit)

The organizational units with responsibilities in this area include:

Programming: Determines the funds that are available during the STIP period and selects the projects that fit best.

Public Transportation: Unit Develops TIP for transit projects that are included in the STIP.

Local Government Programs: Works with the Joint Highway Committee to develop TIP for local government projects that are included in the STIP.

Others involved include:
(not in Systems Planning and Programming)

Regions: Develop prioritized lists of improvement projects for inclusion in both the Orange Book list for pavement preservation, and the STIP for reconstruction and improvement.

Structures Division: Develops prioritized lists of bridge improvement projects.

Traffic and Safety Division: Develops prioritized lists of safety improvement projects.

MPOs: Develop TIPs for urban areas that are included in the STIP.

Transportation Commission: Reviews the draft STIP, makes modifications and approves the final STIP.

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Systems Planning and Programming Group Business Areas and Processes

Business Areas	Monitor Transportation System Conditions	Identify Transportation Needs	Establish Transportation Plans	Determine Program and Project Schedule
Processes *Primary Units* *Other Divisions or Agencies outside of Systems Planning and Programming*	**Inventory Highway Resources** *Photolog, Off-System Data, Roadway Management* **Monitor Traffic Conditions** *Data Collection, Data Analysis, Traffic and Safety* **Monitor Pavement Condition** *Pavement Condition* **Monitor Bridges and Other Structures** *Structures* **Identify Safety Hazards** *Traffic and Safety*	**Evaluate Current and Future Needs** *Asset Management, Long-Range Planning, Pavement Management, Traffic and Safety, Structures* **Forecast Future Traffic Conditions** *Modeling, Data Analysis, MPOs* **Evaluate System Performance** *Asset Management, Pavement Management, Mobility Management, Structures Management, Traffic Safety Management* **Obtain Public Input** *Long-Range Planning, Community Transportation Planning, Regions*	**Develop Long-Range Plan** *Long-Range Planning, Community Transportation Planning, MPOs* **Coordinate with Local Government** *Long-Range Planning, Community Transportation Planning* **Develop Urban Plans** *MPOs* **Develop Corridor Plans** *Community Transportation Planning*	**Forecast Resources Available** *Programming* **Determine Preservation Priorities** *Regions, Structures* **Identify Proposed Improvements** *Regions, Structures, Traffic and Safety* **Identify Urban/Local Projects** *MPOs, Joint Highway Committee* **Develop Project Priorities and Schedule** *Programming*
	Key Products • Traffic on Utah highways • Roads inventory • Monthly traffic bulletin • Highway reference manual • Photolog • Pavement detail sheets • Priority list based on ride • HPMS data • Project traffic reports • Bridge sufficiency ratings • Safety ratings • Annual statistical summary • Maps	**Key Products** • Traffic projections • Bridge sufficiency ratings • Safety ratings • User-group input • Public outreach • Air quality conformity analysis • Performance standards	**Key Products** • Statewide Long-Range Transportation Plan • Corridor plans • Freight plans • Special studies • Bicycle and pedestrian plans • Highway systems administration • Community Transportation Plans	**Key Products** • Projected federal revenue • Projected highways users revenue • Regional prioritized list of preservation projects • Regional prioritized list of improvement projects • Draft STIP

Systems Planning & Programming Directory

Main: 965-4082 | Administration Support: 965-4930

Statistics/Data 965-4560	Systems & Data Analysis 965-4155	Asset Management 965-4354	Planning 965-4808	Program Financing 964-4468
Photolog/Local System 965-4352	Cartography 965-4339	Strategic Analysis 965-4953	Long-Range Planning 965-4829	Obligation of Funds 965-4364
Roadway Management 965-4135		Pavement Management 964-4552	Community Transportation Planning 965-4362	Programming (STIP) 965-4169
Pavement Condition 965-4097			Modeling 965-3864	Local Government Liaison 965-4366
Data Collection 964-4532			Highway System Administration 965-4185	Public Transit 964-4508
Data Analysis 965-4136			Bicycle & Pedestrian Planning 964-4564	
			Freight Planning 965-4148	
			Public Involvement 965-3897	

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